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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/757,849	01/16/2004	Gennadi Finkelshtain	P24712	5103
7055	7590	08/08/2006	EXAMINER	
GREENBLUM & BERNSTEIN, P.L.C. 1950 ROLAND CLARKE PLACE RESTON, VA 20191			THEXTON, MATTHEW	
			ART UNIT	PAPER NUMBER
			1714	

DATE MAILED: 08/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/757,849

Applicant(s)

FINKELSHTAIN ET AL.

Examiner

Matthew A. Thexton

Art Unit

1714

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 70-138 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 70-138 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- ☒ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: ____.

Text of Title 35 USC not Cited

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims Version

The listing of claims submitted 2006 May 16 has been examined.

Claims Analysis

Claims 1-69 have been canceled.

Claims 70-138 have been presented.

Independent claim 70 is directed to processes "for preparing a metal hydride containing liquid for use in a fuel cell" comprising: combining:

(a) a concentrate comprising:

(i) at least one metal hydride;

(ii) a polar solvent; and

(iii) hydroxide ion concentration of at least about 7 moles per liter;

wherein after 4 weeks at about 25C not more than about 2% of the at least one metal hydride compound(s) in the concentrate have decomposed; and

(b) a solvent in an amount of at least about 15 volume % of the concentrate.

Claims 71-83 depend directly or indirectly from claim 70 and specify or further limit: the resulting hydroxide ion concentration; the amount of decomposition; the amount of hydride in the concentrate; the amount of hydroxide in the concentrate; the type of hydride; the type of hydroxide compound; the type of solvent; the presence of water; the relative amounts of hydroxide and hydride in the concentrate, "concentrate is substantially free of any additives which adversely affect the stability of the at least one metal hydride compound;" "concentrate is substantially free of plasticizers, detergents and antifreeze;" and "concentrate is substantially free of any stabilizer for the at least one metal hydride compound which is different from a hydroxide ion providing compound."

Independent claim 84 is directed to processes "for producing a packaged combination for making a fuel for use with a fuel cell," wherein the fuel comprises:

- (i) at least one metal hydride compound;
- (ii) a polar solvent; and
- (iii) a hydroxide ion concentration of not higher than about 7 moles per liter;

comprising:

- (a) providing a container having at least a first and second compartments;
- (b) partially or completely filling the first with a concentrate comprising:

- (i) at least one metal hydride compound;
 - (ii) a first portion of a polar solvent; and
 - (iii) at least about 8 moles per liter of hydroxide ion;
- (c) partially or completely filling the at least one second compartment with an amount of polar solvent which in combination with the concentrate will afford the fuel.

Claims 85-99 depend directly or indirectly from claim 84 and specify or further limit: the fuel hydroxide ion concentration; the amount of decomposition; the amount of hydride in the concentrate; the type of hydride; the type of hydroxide compound; the type of solvent; the presence of water; the fuel hydride concentration; "concentrate is substantially free of any additives which adversely affect the stability of the at least one metal hydride compound;" "concentrate is substantially free of plasticizers, detergents and antifreeze;" "concentrate is substantially free of any stabilizer for the at least one metal hydride compound which is different from a hydroxide ion providing compound;" at least one additive in the second compartment; the type of additive; and the container allows mixing of the compartments components inside it.

Claim 100 depends from claim 84 and is directed to packaged combination "which is obtainable by the process of claim 84."

Independent claim 101 is directed to container for a fuel which fuel comprises:

- (i) at least one metal hydride compound;
- (ii) a polar solvent; and

Art Unit: 1714

(iii) a hydroxide ion concentration of not higher than about 7 moles per liter;

comprising:

(a) a first compartment containing a concentrate comprising:

(i) at least one metal hydride compound;

(ii) a polar solvent; and

(iii) a hydroxide ion concentration higher than the hydroxide ion concentration of the fuel; and

(b) at least one second compartment containing a solvent;

wherein the combining the contents of the compartments produces the fuel.

Claims 102-117 depend directly or indirectly from claim 49 and specify or further limit: the container is sealed and allows mixing of the compartments' contents before discharging; the presence of "instructions;" the compartments do not surround each other; the at least partial surrounding of one compartment by another; the amount of hydride in the concentrate; the type of hydride; the type of hydroxide compound; the type of solvent; the presence of water; the concentration of hydride in the fuel; "concentrate is substantially free of any additives which adversely affect the stability of the at least one metal hydride compound;" "concentrate is substantially free of any stabilizer for the at least one metal hydride compound which is different from a hydroxide ion providing compound;" at least one additive in the second compartment; the type of additive; and the type of hydride stabilizer in the second compartment.

Art Unit: 1714

Claim 118 depends from claim 101 and is directed to a “filling device for a liquid fuel cell” comprising the container of claim 101.

Independent claim 119 is directed to packaged combination “for providing a fuel for use with a fuel cell” comprising:

(a) a first container containing a concentrate comprising:

(i) at least one metal hydride compound;

(ii) a polar solvent; and

(iii) a hydroxide ion concentration higher than the hydroxide ion concentration of the fuel; and

(b) at least one second container containing a solvent in an amount sufficient to result in the fuel if the solvent if the contents of the first and at least one second container are combined.

Claims 120-131 depend directly or indirectly from claim 119 and specify or further limit: the presence of “instructions;” the concentration of hydride in the concentrate; the amount of decomposition; the type of hydride; the type of hydroxide compound; the presence of water; the concentration of hydride in the fuel; “concentrate is substantially free of any additives which adversely affect the stability of the at least one metal hydride compound;” “concentrate is substantially free of plasticizers, detergents and antifreeze;” “concentrate is substantially free of any stabilizer for the at least one metal hydride compound which is different from a hydroxide ion providing compound;” at least one

Art Unit: 1714

additive selected from plasticizers, detergents and antifreeze in the second container;
and the type of hydride stabilizer in the second container.

Independent claim 132 is directed to “method of reducing the decomposition of a fuel for a liquid fuel cell during storage of the fuel comprising:

(a) storing the fuel as a concentrate, said concentrate comprising:

(i) at least one metal hydride compound;

(ii) a polar solvent; and

(iii) a hydroxide ion providing ion; and

(b) diluting the concentrate to prepare the fuel only before using the fuel in the fuel cell;

wherein after 4 weeks at about 25C not more than about 2% of the at least one metal hydride compound(s) in the concentrate have decomposed.

Claims 133 and 134 depend directly or indirectly from claim 132 and specify or further limit: the type of hydride; and the concentration of hydride in the concentrate.

Independent claim 135 is directed to a container “for providing a fuel for use with a fuel cell” comprising:

(a) a first compartment containing a concentrate comprising:

(i) at least one metal hydride compound;

(ii) a polar solvent; and

Art Unit: 1714

(iii) a hydroxide ion concentration higher than the hydroxide ion concentration of the fuel; and

(b) at least one second compartment containing a solvent in an amount sufficient to result in the fuel if the solvent if the contents of the first and at least one second container are combined;

wherein after 4 weeks at about 25C not more than about 2% of the at least one metal hydride compound(s) in the concentrate have decomposed.

Claims 135-138 depend directly or indirectly from claim 135 and specify or further limit: the concentration of hydride in the concentrate; and the concentration of the hydride in the combination.

Claim(s) Objections

Claim 118 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. The claim recites an alternate name for the container but such is not further limiting of the structure. If this is incorrect, Applicant may refute by identifying subject matter of claim 101 which is not encompassed by claim 118.

Claims 70-83 are objected to under 37 CFR 1.75(i) as being in improper form because each of a plurality of elements or steps of a/the claim(s) should be separated

Art Unit: 1714

by a line indentation. See MPEP § 608.01(m). Claim 70 contains the plurality of elements consisting of (a) and (b), and the hydride, the solvent, and the hydroxide of (a). Claim 79 contains the plurality of elements consisting of water, the hydride, and the hydroxide. Claim 80 contains the plurality of elements consisting of the hydride and hydroxide ion.

Claims 84-100 are objected to under 37 CFR 1.75(i) as being in improper form because each of a plurality of elements or steps of a/the claim(s) should be separated by a line indentation. See MPEP § 608.01(m). Claim 84 contains the plurality of elements consisting of the hydride, the solvent, and the hydroxide, and the plurality of steps consisting of providing, partially or completely filling, and partially or completely filling. Claim 91 contains the plurality of elements consisting of water, the hydride, and the hydroxide.

Claims 101-118 are objected to under 37 CFR 1.75(i) as being in improper form because each of a plurality of elements or steps of a/the claim(s) should be separated by a line indentation. See MPEP § 608.01(m). Claim 101 contains the plurality of elements consisting of the hydride, the solvent, and the hydroxide, the first compartment and the second compartment, and the hydride, the solvent, and the hydroxide in the first compartment. Claim 108 contains the plurality of elements consisting of the hydride and the hydroxide. Claim 110 contains the plurality of elements consisting of water, the hydride, and the hydroxide.

Claims 119-131 are objected to under 37 CFR 1.75(i) as being in improper form because each of a plurality of elements or steps of a/the claim(s) should be separated by a line indentation. See MPEP § 608.01(m). Claim 119 contains the plurality of elements consisting of a first and second containers, and the hydride, the solvent, and the hydroxide in the first container. Claim 123 contains the plurality of elements consisting of the hydride and the hydroxide. Claim 124 contains the plurality of elements consisting of water, the hydride, and the hydroxide.

Claims 132-134 are objected to under 37 CFR 1.75(i) as being in improper form because each of a plurality of elements or steps of a/the claim(s) should be separated by a line indentation. See MPEP § 608.01(m). Claim 84 contains the plurality of steps consisting of storing and diluting, and the plurality of elements consisting of the hydride, the solvent, and the hydroxide.

Claims 135-138 objected to under 37 CFR 1.75(i) as being in improper form because each of a plurality of elements or steps of a/the claim(s) should be separated by a line indentation. See MPEP § 608.01(m). Claim 135 contains the plurality of elements consisting of the first compartment and the second compartment, and the hydride, the solvent, and the hydroxide in the first compartment.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 75, 88-90, 108, 109, and 123 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The recited compound “(CH₃)₃NBH₃” does not appear to have basis in the originally filed specification, including the claims.

Claims 99 and 100 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 99 recites the limitation "the at least one second component" in line 2 thereof. There is insufficient antecedent basis for this limitation in the claim.

Claim 100 is directed to a “packaged combination which is obtainable by the process of claim 84.” The term “obtainable” is indefinite.

The following are supporting decisions for rejecting "obtainable" and similar terms as indefinite.

1. Atlantic Thermoplastics Co. Inc. v Faytex Corp. 23 USPQ 2nd 1481 (1486).

Art Unit: 1714

In footnote 6, on page 1486, referring to *Cochrane v Badische Aniline and Soda Fabrik (BASF)*, 11 US 293, the court stated "...because artificial alizarine can take different forms, BASF's claim would be indefinite unless limited to the described process".

The claim referred to is

"Artificial alizarine produced from anthracene or its derivatives by either of the methods described herein or any other method producing a like result."

2. Ex parte Tanksley 26 USPQ 2nd 1389

"A claim is indefinite if undue experimentation is involved to determine boundaries of protection".

This rationale is applicable to polymers obtainable by a stated process because any variation in any parameter within the scope of the claimed process would change the polymer produced. One who made or used a polymer made by a process other than the process recited in the claim would have to produce polymers using all possible parameters within the scope of the claims (temperature, pressure, diluents, component ratios, feed ratios, etc.) and then extensively analyze each product, to determine if his polymer was obtainable by a process within the claimed process.

3. *Purdue Research v Watson* 1959 CD 124 (Dist Ct) affirmed by CCPA 120 USPQ 521.

"Preparable by" was held to not particularly point out and distinctly claim the invention.

"When one has produced a composition of matter where it is not possible to define its characteristics which make it inventive except by reference to the process by which it is produced, one is permitted to so claim the composition produced by the process referred to in the claims. When the composition is thus claimed in terms of the process of its preparation, the product cannot be defined in such a manner as to assert a monopoly on the product by whatever means produced.

Claims Rejections

Claims 70-83 and 132-134 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Finkelshtain et al. (US 2002/0083640A1) alone or in view of Amendola et al. (US 2002/0083643 A1).

The present claims are broadly discussed hereinabove in the section ***Claims Analysis*** which is incorporated by reference.

The reference '640 discloses fuel mixtures for fuel cells comprising "a surface active compound" and hydride such as NaBH_4 and an electrolyte such as KOH. The

Art Unit: 1714

concentration of KOH may be 2 to 12 M (paragraph 0040, and claim 10). It is stated the hydride solutions are unstable in acid or neutral conditions but stable in basic (paragraphs 0017 to 0020). It would be immediately envisaged by one of ordinary skill in the art at the time of the invention to create the basic solution to obtain the stability noted. '640 further notes that 6M KOH is the preferred concentration, although stability and solubility are factors to take into account for exact composition of the fuel (paragraph 0040), hence it would be immediately envisaged that the disclosed stability objective is a function of basicity and mere dilution to 6M would obtain the noted preference, as required by claims 70-83 and 132-134. In sum, '640 suggests employing basic solutions for stability, and suggests employing 6M hydroxide ions for optimal electrical output; one of ordinary skill in the art would realize that dilution of a storage stable solution of $\text{pH} > 7$ is the way to accomplish both goals.

In the event the reference is deemed to be of not sufficient specificity to sustain a conclusion of anticipation, then it is concluded that it would have been obvious to one of ordinary skill in the art at the time of the invention to have varied the degree of basicity as suggested to obtain a desired level of stability, whether storing it in the laboratory or in commerce, it would be apparent that longer storage is desirable and obtainable by the expedient suggested. Accordingly, having obtained the obvious concentrate for storage property, it would have been obvious to one of ordinary skill in the art at the time of the invention to dilute for use, as it is suggested to employ 6M concentration (paragraph 0040), as required by claims 70-83 and 132-134. To the extent that the claims require a pH not suggested by the reference, '643 suggests that higher pH is

more effective, paragraph 0033, and it is concluded that one of ordinary skill in the art at the time of the invention would have found it obvious to employ workable pH while keeping in mind the intention of diluting and the desired generating output, balancing the various factors.

Claims 84-97, 99-116, 118-130, and 135-138 are rejected under 35 U.S.C. 103(a) as being unpatentable over Finkelshtain et al. (US 2002/0083640A1) alone or in view of Amendola et al. (US 2002/0083643 A1).

The present claims are broadly discussed hereinabove in the section ***Claims Analysis*** which is incorporated by reference.

The reference '640 is discussed in the statement of rejection immediately hereinabove, which is incorporated here by reference. It is concluded that '640 either enables the ordinary artisan to immediately envisage the employment of, or to be motivated by suggestion to employ, the expedient of increasing the basicity to obtain a desired level of stability, and further to dilute such mixture to obtain the suggested 6M concentration in use. It is suggested to further employ methanol, a surface active compound, 0042, which is well known as an anti-freeze, as called for in claims 96, 97, 115, 116, and 130.

It would have been obvious to one of ordinary skill in the art at the time of the invention to "package" or "container" the obvious or anticipated storage stable concentrate along with a package or container containing the necessary solvent for obtaining the acknowledged optimal 6M fuel mixture and appropriate instructions

Art Unit: 1714

because: (1) such avoids problems of dosing the proper amounts of the two components by the end user; (2) such avoids problems of dosing with impure solvent. The packages and containers forming a part of the claims are well known in the prior art and Applicant has not represented them as, per se, novel, accordingly Official notice is taken of these particulars. To the extent that the claims require a pH not suggested by the reference, '643 suggests that higher pH is more effective, paragraph 0033, and it is concluded that one of ordinary skill in the art at the time of the invention would have found it obvious to employ workable pH while keeping in mind the intention of diluting and the desired generating output, balancing the various factors.

Claims 70-83 and 132-134 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suda (US 2002/0015869A1) alone or in view of Amendola et al. (US 2002/0083643 A1).

The present claims are broadly discussed hereinabove in the section ***Claims Analysis*** which is incorporated by reference.

See example 1; 30 weight % KOH is thought to be about 7.5M, which is "about" 8M, and 2 weight % KBH₄ is thought to be about 0.4M. '869 further suggests the hydride be used in the range of 0.1 to 50 weight % (paragraph 0050) "in consideration of the desired power generating capacity of the liquid fuel cell...." It would have been obvious to one of ordinary skill in the art at the time of the invention to follow the plain suggestion in '869 to vary the amounts of components, to have employed concentrations anywhere within the ranges suggested, and to have made less

Art Unit: 1714

concentrated ones from more concentrated ones as an obvious expedient. To the extent that the claims require a pH not suggested by the reference, '643 suggests that higher pH is more effective, paragraph 0033, and it is concluded that one of ordinary skill in the art at the time of the invention would have found it obvious to employ workable pH while keeping in mind the intention of diluting and the desired generating output, balancing the various factors.

New Bases of Claims Rejections

Claims 70-83 and 132-134 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Tsang (US 6818334B2) alone or in view of Amendola et al. (US 2002/0083643 A1).

The present claims are broadly discussed hereinabove in the section ***Claims Analysis*** which is incorporated by reference.

'334 discloses production of two solutions, one comprising metal boro-hydride, water, and hydroxide, the other comprising water, which are then combined thus diluting each and which then forms a mixture used as a fuel in a fuel cell (column 1, line 42 to column 2, line 34, column 3, line 54 to column 4, line 45).

In the event the reference is deemed to be of not sufficient specificity to sustain a conclusion of anticipation, then it is concluded that it would have been obvious to one of ordinary skill in the art at the time of the invention to have selected proportions of components within the limits disclosed to determine the workable limitations. To the extent that the claims require a pH not suggested by the reference, '643 suggests that

Art Unit: 1714

higher pH is more effective, paragraph 0033, and it is concluded that one of ordinary skill in the art at the time of the invention would have found it obvious to employ workable pH while keeping in mind the intention of diluting and the desired generating output, balancing the various factors.

Claims 84-97, 99-116, 118-130, and 135-138 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsang (US 6818334B2) or Tsang (EP 1369947A2) which is the equivalent but having a different effective publication date, alone or in view of Amendola et al. (US 2002/0083643 A1).

The present claims are broadly discussed hereinabove in the section ***Claims Analysis*** which is incorporated by reference.

The reference '334 is discussed in the statement of rejection immediately hereinabove, which is incorporated here by reference. It is concluded that '334 either enables the ordinary artisan to immediately envisage the employment of, or to be motivated by suggestion to employ, the expedient of increasing the basicity to obtain a desired level of stability, and further to dilute such mixture to obtain the suggested 6M concentration in use. It is suggested to further employ additives (column 4, lines 1-9) several of which are is well known as an anti-freeze, as called for in claims 96, 97, 115, 116, and 130.

It would have been obvious to one of ordinary skill in the art at the time of the invention to "package" or "container" the obvious or anticipated storage stable concentrate along with a package or container containing the necessary solvent for

Art Unit: 1714

obtaining the acknowledged optimal 6M fuel mixture and appropriate instructions because: (1) such avoids problems of dosing the proper amounts of the two components by the end user; (2) such avoids problems of dosing with impure solvent. The packages and containers forming a part of the claims are well known in the prior art and Applicant has not represented them as, per se, novel, accordingly Official notice is taken of these particulars. To the extent that the claims require a pH not suggested by the reference, '643 suggests that higher pH is more effective, paragraph 0033, and it is concluded that one of ordinary skill in the art at the time of the invention would have found it obvious to employ workable pH while keeping in mind the intention of diluting and the desired generating output, balancing the various factors.

Claims 70-83 and 132-134 are rejected under 35 U.S.C. 102(a) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Tsang (EP 1369947A2) alone or in view of Amendola et al. (US 2002/0083643 A1).

The present claims are broadly discussed hereinabove in the section **Claims Analysis** which is incorporated by reference.

'947 discloses production of two solutions, one comprising metal boro-hydride, water, and hydroxide, the other comprising water, which are then combined thus diluting each and which then forms a mixture used as a fuel in a fuel cell (0006-0011, 0018-0024).

In the event the reference is deemed to be of not sufficient specificity to sustain a conclusion of anticipation, then it is concluded that it would have been obvious to one of

Art Unit: 1714

ordinary skill in the art at the time of the invention to have selected proportions of components within the limits disclosed to determine the workable limitations. To the extent that the claims require a pH not suggested by the reference, '643 suggests that higher pH is more effective, paragraph 0033, and it is concluded that one of ordinary skill in the art at the time of the invention would have found it obvious to employ workable pH while keeping in mind the intention of diluting and the desired generating output, balancing the various factors.

Citation of Pertinent Prior Art

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Amendola (US 6497973 B1), previously cited, is noted for its disclosure of borohydride based fuel cells of wide ranging sizes from button batteries to electrical power utility and industrial sizes, and the use of stabilized, concentrated mixtures safe for transport (column 18, lines 3-30), although the contemplated means of releasing the hydrogen are acidification or catalyzation.

Response to Arguments

Applicant's response of 2006 May 16 has been considered.

Applicant's arguments, see pages 27-30 of response, with respect to the rejection of the method claims over '640 are not persuasive. In the paragraph bridging pages 28 and 29 and the paragraph immediately preceding Applicant argues that '640

Art Unit: 1714

fails to teach or suggest that there is a relationship between stability and degree of basicity and thus one would not be inclined to employ "pH of the fuel beyond >7 in order to increase the stability." This is responded to as follows: (1) "beyond >7" is redundant because >7 is unbounded and includes 8, 14, etc. (2) '640 suggests a basic solution which encompasses 8, 14, etc. (3) Applicant's claims are not limited by or tied to a relationship between stability and degree of basicity; in fact they do not recite the pH. (4) Applicant has not indicated in the specification or arguments the evidence of a relationship between stability and degree of basicity. (5) Applicant appears to admit that the relationship is known, and that for storage and transportation 8 M mixtures have been tried in the prior art, paragraph 0009. (6) The relationship is strongly suggested in Amendola et al. (US 2002/0083643 A1) at paragraph 0033.

Applicant's arguments, see page 31 of response, with respect to rejection of the article claims over '640 are not persuasive. The response in the immediately preceding paragraph is thought to address Applicant's arguments.

Applicant's arguments, see pages 32-33 of response, with respect to the rejection of the claims over '640 in view of '669 are partially persuasive. Significantly, it is clear that '669 is directed to different endeavors than those of '640, and that '669 fails to relate to metal hydride containing mixtures. Accordingly, this rejection is withdrawn.

Applicant's arguments, see pages 33-35 of response, with respect to the rejection of the claims over '710 are persuasive. Accordingly, this rejection is withdrawn.

Applicant's arguments, see pages 35-36 of response, with respect to the rejection of the claims over '710 in view of '669 are persuasive. Accordingly, this rejection is withdrawn.

Applicant's arguments, see page 36 of response, with respect to the rejection of the concentrate claims over '963 are moot. Accordingly, this rejection is withdrawn.

Applicant's arguments, see page 36 of response, with respect to the rejection of the concentrate claims over '832 are moot. Accordingly, this rejection is withdrawn.

Applicant's arguments, see page 36 of response, with respect to the rejection of the concentrate claims over '334 are moot. Accordingly, this rejection is withdrawn.

Applicant's arguments, see page 36 of response, with respect to the rejection of the concentrate claims over '947 are moot. Accordingly, this rejection is withdrawn.

Applicant's arguments, see page 36 of response, with respect to the rejection of the concentrate claims over '869 are moot. Accordingly, this rejection is withdrawn.

Applicant's arguments, see page 36 of response, with respect to the rejection of the concentrate claims over '001 are moot. Accordingly, this rejection is withdrawn.

Applicant's arguments, see page 36 of response, with respect to the rejection of the concentrate claims over '041 are moot. Accordingly, this rejection is withdrawn. Applicant correctly notes that claim 28 was inadvertently included in this rejection.

Applicant's arguments, see pages 37-38 of response, with respect to the rejection of the concentrate claims over '869 are moot. Accordingly, the rejection over claims 9, 16, 20-23, 26, and 27 is withdrawn. Applicant's arguments with respect to rejection of the method and article claims over '869 are not persuasive. Applicant

Art Unit: 1714

argues that the reference does not provide any motivation to prepare a concentrated fuel and then to dilute it. This is responded to as follows: '869 does provide motivation to prepare a range of mixtures in order to obtain the desired power generating capacity. The motivation to dilute such mixtures in order to match needs with resources on hand is found in the long existing practice of creating concentrates for storage and transport and performing dilution at the use site. Applicant points to paragraph 0049 and concludes that concentrations of hydroxide ion of greater than 30 wt % is to be avoided. This is responded to as follows: (1) Applicant fails to assert that the present claims contain greater than 30 wt % of hydroxide ion. (2) The caveat in the cited paragraph is in the context of whether it limits the solubility of the metal hydrogen complex compound; which Applicant fails to assert is present in the present claims.

Applicant's arguments, see page 39 of response, with respect to the rejection of the claims over '869 in view of '669 are partially persuasive. Significantly, it is clear that '669 is directed to different endeavors than those of '869, and that '669 fails to relate to metal hydride containing mixtures. Accordingly, this rejection is withdrawn.

Allowable Subject Matter

Claims 98, 117, 131 are allowable over the prior art.

The following is a statement of reasons for the indication of allowable subject matter:

Art Unit: 1714

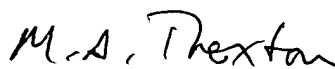
None of the references considered disclose "aromatic or aliphatic amine" in combination with metal hydride based fuel cell fuels.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew A. Thexton whose telephone number is 571-272-1125. The examiner can normally be reached on Tuesday-Friday, 10:00-7:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasudevan S. Jagannathan can be reached on 571-272-1119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


Matthew A. Thexton
Primary Examiner
Art Unit 1714